

Abstract of the Disclosure

Pilot signals transmitted by different antennas in a wireless communication system using multiple transmit antennas are distinguished using different codes. In one embodiment, each of two antennas simultaneously transmit a time slot's worth of data while time division multiplexing a pilot signal with the data. The pilot signal from the first antenna is encoded with a first code such as a Walsh code and the pilot signal from the second antenna is encoded with a different code such as a different Walsh code. The different codes enable a receiver to distinguish the pilot signals when they are received to enable coherent detection of signals transmitted by both of the antennas.